DAGATRON®

Arbitrary Function Generator

AFG 100

◆ Features

- 0.01Hz – 12.5MHz arbitrary function generator with DDS (Direct Digital Synthesis)
- Max. sample rate 33MS/S
- Arbitrary, sine, square wave, triangle, ramp signal
- Accuracy of frequency setting - ±0.01% ±0.002Hz
- Internal sweep (sweep time 10ms~60s) – sweep mode (linear, logarithmic- discrete)
- Amplitude Modulation – internal (depth, frequency), external
- Synchronization output – square wave signal (COMS/TTL level)
- DCV offset adjusted within a wide range
- Auto -calibration
- Protection of the signal output – if an external voltage
- LCD adjustment (bright / contrast)
- Pre-setting (memory)-store/recall
- RS-232C interface
- Radio interference suppression – EN55011 Class B
- Safety class – I according to EN 61010 Part 1

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◆ Technical Specification of AFG100 Arbitrary Function Generator

Output Frequency range and accuracy

Frequency range	0.01Hz…12.5MHz for sinusoidal and square wave signals 0.01Hz… 100KHz for triangular and ramp signals
Frequency setting	5 digits or 0.001Hz
Accuracy of frequency setting (at nominal temperature)	±0.01% ±0.002Hz
Temperature coefficient of frequency	±100 ppm in operating temperature range

Signal output

Output impedance	50Ω ±1.5%, unbalanced
Output voltage Vpp	10mV…..10V/50Ω
Output voltage setting	3digits
Accuracy of output voltage at F = 1 KHz	±(2%+20mV)
Additional frequency error of output voltage	±1db in the range 10Hz 1MHz ±2dB 0.01Hz 10MHz
Temperature coefficient of output voltage	<±5 × 10^{-3} / K
Direct voltage offset of signal (V_{offset})	±2.5V in 10mV steps
Accuracy of offset voltage setting	±(1% + 20mV)
Output signal	Sinusoidal, square wave, triangular, ramp(up, down) Arbitrary
Distortion factor of sinusoidal signal	<0.5% in the range 10Hz … 100KHz
Rise time of square wave signal	<25ns
Overshoot of square wave signal	<0.5% + 30mV
Non-linearity of triangular signal (5%…95%)	<1%

Arbitrary signal characteristics

Horizontal resolution (length of signals)	8192points
Vertical resolution of level	1024 points (10 bit)
Sample period	30 ns × 2^{N-1} , N = 1…32

SWEEP Function

Frequency change for the SWEEP Function	0.01 Hz..12.5MHz (100KHz for triangular and ramp signals)
Sweep type	linear, logarithmic – discrete
Direction of frequency change	rising, falling
Period of repetition for the SWEEP function	10ms … 60s

Square wave synchronization output

Output voltage Vpp	5V ±10% CMOS
Duty cycle of output signal	Approx. 1:1 for periodical signals pulse “ Start” with a width of approx. 5us at the sweep function

Amplitude modulation

Source of modulation signal	Internal, External
Frequency range of ext. modulation input	0Hz …. 20KHz
Amplitude of external signals (Vpp)	2V for AM modulation depth M = 100%
Input impedance of external AM Input	100kΩ
Frequency range of internal modulation	From approx. 100Hz to approx. 10KHz, discrete frequency values
Depth of amplitude modulation	0 to 100%, 1% steps for internal generator of AM

General Data

Nominal temperature	+23℃ ±2℃
Operating temperature	+5℃ …+40℃
Relative humidity	20 to 80%
Atmospheric pressure	70 to 106kPa
Operating voltage	A.C. voltage, 115/230V (+10%, -15%),47-63Hz
Power consumption	27VA (max. 27W)
Safety class	I according to DIN EN 61010-1
Radio interference suppression	EN 55011 Class B
Dimensions (W × H × D)	225mm × 85mm × 200mm
Weight Weight incl. packing and accessories	Approx. 2.5kg Approx. 3.5kg

Accessories supplied with the package

Main cable, Coaxial cable, Operating instruction, Spare fuses, Diskette.

System Interfaces

The AFG100 can be fully controlled and read out via the serial interface RS-232C. The data transfer is based on the ASCII character set.

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